

[SHORT COMMUNICATION]

Psilenchus bilineatus* n. sp. closely allied to *P. hilarulus

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A nematode belonging to the genus *Psilenchus* DE MAN, 1921⁴⁾, which is apparently a new record from the Far East, was found around the root of tulip in Toyama, Japan, and this was described here as *Psilenchus bilineatus* n. sp. Nematodes were separated from soil by the Baermann funnel technique, relaxed by gentle heat, fixed by TAF, and mounted in glycerin after SEINHORST's glycerol-ethanol method⁵⁾.

***Psilenchus bilineatus* N. SP.**

(Fig. 1, A-J)

Measurements: Holotype ♀: L=840 μ m; a=40; b=6.3; c=6.8; c'=8.6; V(%)=46; spear=13.4 μ m; MB(%)=56; Tail/V-A (tail length divided by vulva-anus distance) (%)=37.

Paratypes ♀♀ (n=23): 1) General: L=761-982 (875 $\pm$ 63: mean $\pm$ SD) μ m; a=36-50 (44 $\pm$ 4); b=5.9-7.5 (6.7 $\pm$ 0.5); c=6.3-8.5 (6.9 $\pm$ 0.5); c'=7-12 (9.5 $\pm$ 1.2); V(%)=45-50 (46 $\pm$ 1); spear=12.3-15.0 (13.6 $\pm$ 0.5) μ m; MB(%)=55-60 (57 $\pm$ 1.3); Tail/V-A(%)=27-45 (37 $\pm$ 3.5); Rex=76-88 (81 $\pm$ 3); ROes=115-138 (126 $\pm$ 7).

2) Oesophageal region: Annule width at median oesophageal bulb=0.9-1.3 (1.2 $\pm$ 0.1) μ m; head height=3.2-5.1 (3.9 $\pm$ 0.4) μ m; head width=5.9-7.1 (6.6 $\pm$ 0.3) μ m; distance between spear end and dorsal oesophageal gland orifice (DGO)=3.2-5.5 (4.2 $\pm$ 0.8) μ m; amphid width (n=10)=1.6-2.8 (2.3 $\pm$ 0.4) μ m; conus/spear(%)=35-47 (41 $\pm$ 4); spear/head width=1.8-2.4 (2.1 $\pm$ 0.1); procorpus/spear=3.3-4.8 (4.1 $\pm$ 0.3); number of annules between neck and spear base=10-12 (11); median oesophageal bulb (MOB) length/MOB width=1.1-1.7 (1.4 $\pm$ 0.1); MOB width/corresponding body width(%)=44-63 (52 $\pm$ 5); isthmus length/basal oesophageal bulb (BOB) length=1.1-2.2 (1.7 $\pm$ 0.3); body width at BOB/head width=2.3-3.7 (3.0 $\pm$ 0.3); oesophagus

length(OESL)=117-139 (131 $\pm$ 5.5) μ m; distance from anterior body end to excretory pore (EXP)=83-103 (93 $\pm$ 5.5) μ m; EXP/OESL(%)=64-80 (71 $\pm$ 4); EXP/L(%)=10-12 (10.6 $\pm$ 0.7); distance between excretory pore and median bulb end as percentage of isthmus length=14-77 (40 $\pm$ 18).

3) Mid-body region: Annule width at mid-body=0.6-1.2 (0.9 $\pm$ 0.1) μ m; lateral field width (LFW)=6.3-9.5 (7.4 $\pm$ 1.0) μ m; LFW/corresponding body width(%)=33-45 (38 $\pm$ 3.6); vaginal body width (VBW)=16-25 (19.7 $\pm$ 2.2) μ m; vagina length/VBW(%)=44-67 (55 $\pm$ 6); anterior ovary length(AO)=155-277 (205 $\pm$ 34) μ m; posterior ovary length=129-296 (203 $\pm$ 47) μ m; vulva-anus distance(V-A)=285-407 (344 $\pm$ 32) μ m; AO/V-A(%)=38-79 (58 $\pm$ 11); distance between center of anterior spermatheca and vulva (DASPM)=32-44 (39 $\pm$ 4) μ m; distance between center of posterior spermatheca and vulva (DPSPM)=34-60 (46 $\pm$ 8) μ m; DASPM/VBW=1.7-2.4 (2.0 $\pm$ 0.2); DPSPM/VBW=1.9-2.9 (2.4 $\pm$ 0.4); anterior spermatheca length (ASPML)=17-36 (27 $\pm$ 6) μ m; posterior spermatheca length (PSPML)=19-33 (26 $\pm$ 5) μ m; anterior spermatheca width (ASPMW)=8-13 (10 $\pm$ 1.6) μ m; posterior spermatheca width (PSPMW)=7-13 (10 $\pm$ 1.7) μ m; ASPML/ASPMW=1.5-3.8 (2.6 $\pm$ 0.6); PSPML/PSPMW=2.1-3.3 (2.6 $\pm$ 0.4). 4) Tail region: Annule width at tail=1.3-2.4 (1.8 $\pm$ 0.2) μ m; tail length=107-146 (127 $\pm$ 9) μ m; rectum/anal body width(%)=44-88 (60 $\pm$ 9); distance between phasmid and anus divided by anal body width=0.7-2.4 (1.6 $\pm$ 0.3).

Paratypes ♂♂ (n=20): 1) General: L=661-875 (786 $\pm$ 48) μ m; a=29-49 (43 $\pm$ 6); b=5.6-7.1 (6.3 $\pm$ 0.4); c=5.3-6.7 (6.1 $\pm$ 0.4); c'=9-12 (10.6 $\pm$ 1.0); T(%)=38-54 (45 $\pm$ 4); spear=12-14.5 (12.9 $\pm$ 0.8) μ m; MB(%)=53-64 (57 $\pm$ 2).

2) Oesophageal region: Head height=3.6-4.7 (3.8 $\pm$ 0.3) μ m; head width=5.5-6.7 (6.1 $\pm$ 0.4) μ m; DGO(n=9)=3.6-5.5 (4.5 $\pm$ 0.7) μ m; conus/spear(%)=32-50 (40 $\pm$ 5); spear/head width=1.8-2.4 (2.1 $\pm$ 0.2); procorpus/spear=3.4-4.9 (4.0 $\pm$ 0.4); head height/head width(%)=36-61 (47 $\pm$ 6); MOB length/MOB width=1.2-1.8 (1.5 $\pm$ 0.2); body width at BOB/head width=2.5-4.6 (3.0 $\pm$ 0.5); OESL=112-133 (125 $\pm$ 6) μ m; EXP=82-110 (92 $\pm$ 7) μ m; EXP/OESL(%)=65-85 (73 $\pm$ 4); EXP/L(%)=10.4-13.9 (11.7 $\pm$ 0.8). 3) Mid-body region: Testis length=277-444 (353 $\pm$ 44) μ m. 4) Tail region: Tail

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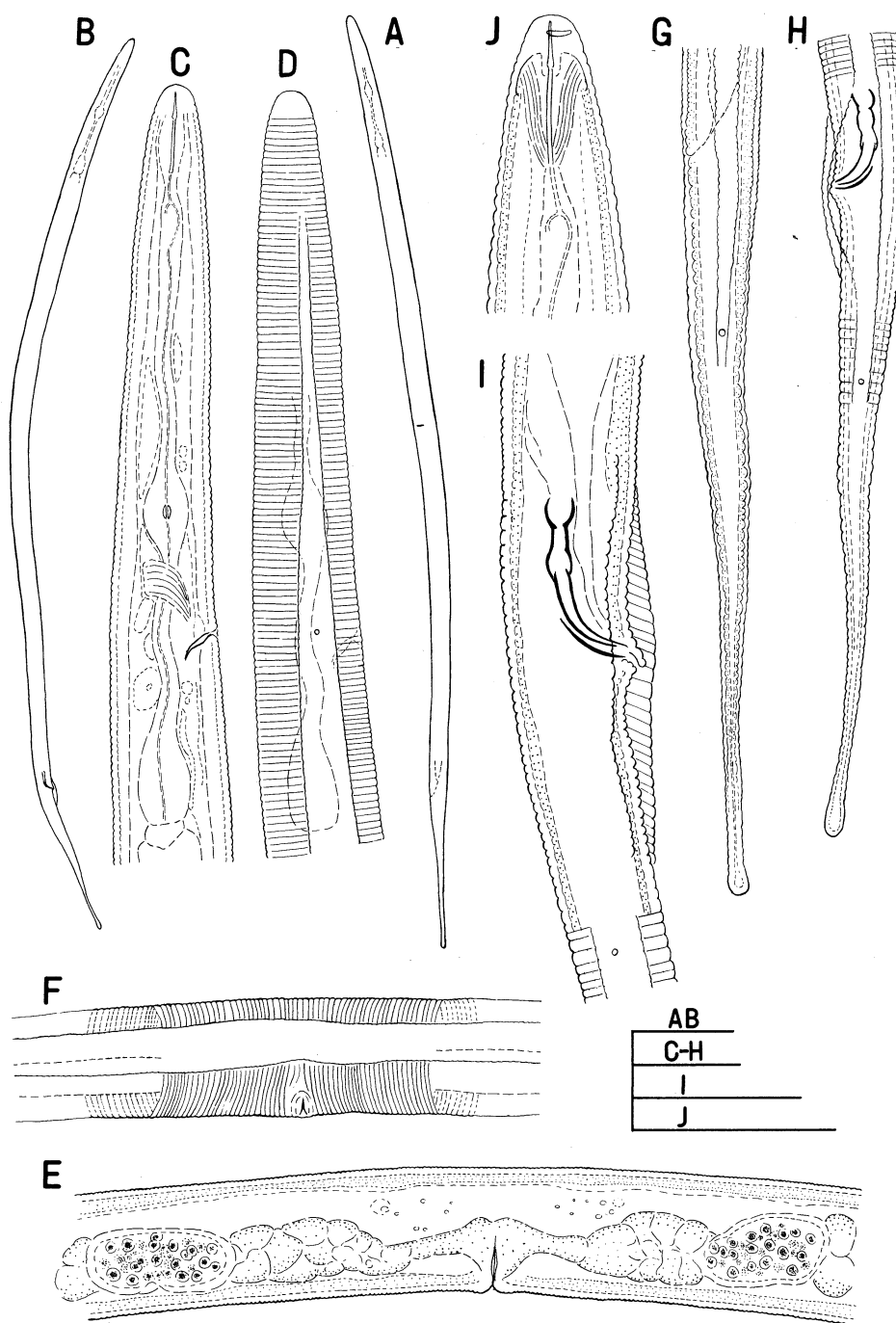


Fig. 1. *Psilenchus bilineatus* n. sp. from Toyama, Japan. Female: A, general view; C, oesophageal region, inner view; D, do. surface view; E, vulval region, inner view showing spermatheca; F, do. surface view; G, tail. Male: B, general view; H, tail; I, cloacal region, inner view. Scale: A, B=100 μ m; C-J=20 μ m.

length=116-147 (129 ± 9) μm ; spicule=18.2-21.4 (20.6 ± 1.0) μm ; gubernaculum=6.3-8.7 (7.8 ± 0.8) μm ; bursa=40-75 (53 ± 11) μm .

Description: Females: Body varies from straight to arcuate when killed by gentle heat. Head elevated, rounded, not set off from body, smooth but rarely annulated up to amphidial level; amphidial slits about 1/3 as wide as head base; outer cephalic framework not always discernible, mostly 4 μm or 4 annule extend into body. Spear delicate, knobless; DGO nearly 1/3 as long as spear. Lateral fields plain, without inner two incisures, occasionally slightly elevated along margins which weakly crenate. Excretory pore varies in position from slightly behind median bulb to posterior half of isthmus but never on basal bulb. Nerve ring closely behind median oesophageal bulb. Hemizonid, when observed, just anterior to excretory pore. Deirids at the pore level. Body annules behind anus unexceptionally about twice as wide as those before anus, mostly narrowed behind mid-tail though distinct down to clavate terminus which rarely annulated. Oocytes partially in double row.

Males: Body fairly smaller than female. Spicule curved, cephalated; manubrium not constricted. Gubernaculum trough-shaped. Bursal alae mostly narrow, crenate on margins, originating in front of spicules.

Diagnosis and relationships: The new species can be recognized by its smooth head and lateral fields of plain bands. It comes close to *Psilenchus hilarulus* DE MAN, 1921⁴⁾ when it is compared with KNOBLOCH's recent emended description of *P. hilarulus*³⁾. Because of its plain lateral fields, this new species is clearly distinguished from *P. hilarulus*. By having unstriated head and two lines in lateral fields, the new species keys to *P. terextremus* HAGEMEYER & ALLEN, 1952¹⁾ and *P.*

intermedius THORNE & MALEK, 1968⁷⁾ in KHEIRI's key²⁾. *P. bilineatus* n. sp. differs in the clavate tail terminus from *P. terextremus* which has filiform tapering to finely rounded tail tip, and differs in elevated, dome-shaped head and clavate tail terminus from *P. intermedius* which has somewhat truncate head and bluntly rounded tail terminus.

Notes: SIDDIQI⁶⁾ gave drawings of *P. hilarulus* from Hungary, in which he showed narrow lateral fields without inner two incisures. We did not take the Hungarian population into consideration, since he did not give description.

Type habitat and locality: Soil around the root of tulip, *Tulipa* "Lucky Strike", Tonami City, Toyama (central Japan), v. 1986, K. NAHATA leg.

Type material: Holotype ♀ (Type No. T-23-1) and paratypes (23 ♀♀, 20 ♂♂) are deposited in the "Herbarium and Insect Museum" of National Institute of Agro-Environmental Sciences (NIAES).

We are grateful to Dr. Kiyonobu NAHATA of Toyama Vegetable and Ornamental Crops Research Station, Toyama Prefecture for sending us the nematode material.

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Accepted for publication: June 30, 1987.